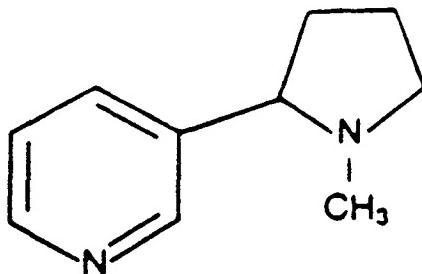


# FLUWAPROGRAM

## *International Symposium on Nicotine*

*The Effects of Nicotine on  
Biological Systems II*

*July 21-24, 1994  
Hotel Le Chantecler  
Montreal, Canada*



Satellite Symposium of the XIIth International  
Congress of Pharmacology

2048712285

# **Meeting Organization**

## **Organizing Committee**

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M. Quik, Canada

F.X. Adlkofer, Germany  
K. Thurau, Germany

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# Scientific Program

All symposium presentations and poster sessions will be held in Seigneurie rooms I and II. The Conference Secretariat office will be open during the entire meeting. It is situated on the main floor in room Courmayeur.

## Thursday, July 21 - PM

**14:00 - 19:00    REGISTRATION**

**19:00 - 20:00    SESSION 1: Overview**

Chairperson: K. Thurau, Germany  
(15 min presentation plus 5 min discussion)

19:00            **S1** - Current controversies in nicotine research  
P.B.S. Clarke, Canada

19:20            **S2** - Acute biological effects of nicotine and its metabolites  
N.L. Benowitz, USA

19:40            **S3** - Involvement of nicotine and its metabolites in the pathology of smoking and smoking-related diseases: Facts and hypotheses  
F. X. Adlkofer, Germany

**20:00            BARBECUE ON TERRACE**

## Friday, July 22 - AM

**08:30 - 12:00    SESSION 2: Structure and function of nicotinic receptors**

Chairpersons: J. Patrick, USA and D. Bertrand, Switzerland  
(20 min presentation plus 10 min discussion)

08:30            **S4** - Assembly of the alpha7 containing neuronal nicotinic acetylcholine receptor  
J. Patrick, USA

09:00            **S5** - Biochemical characterization of neuronal nicotinic receptors  
F. Clementi, Italy

09:30            **S6** - Neuronal nicotinic receptor structure and function  
J.M. Lindstrom, USA

**10:00            BREAK/POSTERS (refreshments will be served)**

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## Friday, July 22 - AM (cont'd)

- 10:30           **S7** - Determinants regulating neuronal nicotinic receptor function  
D. Bertrand, Switzerland
- 11:00           **S8** - Expression, function, and regulation of neuronal ACh receptors containing the  $\alpha 7$  gene product  
D. Berg, USA
- 11:30           **S9** - Regulation of acetylcholine receptor genes expression during synaptogenesis in muscle and brain  
J.-P. Changeux, France
- 12:00           **LUNCH**

## Friday, July 22 - PM

- 13:30 - 15:10 SESSION 3: Nicotinic receptor regulation and tolerance**  
Chairpersons: M.J. Marks, USA and K.J. Kellar, USA  
(15 min presentation plus 5 min discussion)
- 13:30           **S11** - The role of desensitization in CNS nicotinic receptor function  
P.M. Lippiello, USA
- 13:50           **S10** - Biochemical measures of nicotinic receptor desensitization  
M.J. Marks, USA
- 14:10           **S12** - Presynaptic heteroreceptors, autoreceptors and nicotinic receptor subtypes  
S. Wonnacott, UK
- 14:30           **S13** - Regulation of neuronal nicotinic receptors: *In vivo* and *in vitro* studies  
K.J. Kellar, USA
- 14:50           **S14** - Conditioned tolerance to nicotine in rats  
A.R. Caggiula, USA
- 15:10 - 18:00 BREAK/POSTERS**

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## Friday, July 22 - PM (cont'd)

19:00 - 22:00    **POSTER SESSION** (wine, cheese, and more...)

There will be five awards (\$1,000 each) for the best poster presentations at the meeting. All meeting participants will be invited to submit their selection of the three best posters.

## Saturday, July 23 - AM

**08:30 - 12:00    SESSION 4: Neuronal, trophic and endocrine effects of nicotine**

Chairpersons: M.J. Rand, Australia and K. Fuxe, Sweden  
(15 min presentation plus 5 min discussion)

08:30            **S15** - Developmental effects of nicotine  
T.A. Slotkin, USA

08:50            **S16** - Potentiation of transmission via presynaptic nicotine-activated channels permeable to calcium and blocked by  $\alpha$ -BgTx  
L.W. Role, USA

09:10            **S17** - Electrophysiology of nicotinic receptors in rodent CNS  
C. Mulle, France

09:30            **S18** - Factors controlling nicotinic acetylcholine receptor expression on rat sympathetic neurons  
E. Cooper, Canada

**09:50            BREAK/POSTERS (refreshments will be served)  
Deadline for submission of poster award voting slips**

10:20            **S19** - A role for the nicotinic  $\alpha$ -bungarotoxin receptor in growth related processes  
M. Quik, Canada

10:40            **S20** - Mechanisms of nicotine stimulated cell proliferation in normal and neoplastic neuroendocrine lung cells  
H.M. Schuller, USA

11:00            **S21** - Brainstem catecholaminergic pathways activated by nicotine are involved in the hippocampal expression of c-FOS mRNA and protein, stimulation of the hypothalamic paraventricular nucleus and secretion of ACTH  
B.M. Sharp, USA

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## Saturday, July 23 - AM (cont'd)

- 11:20           **S22** - Nicotine-induced gene expression of proenkephalin in bovine chromaffin cells  
V. Höllt, Germany
- 11:40           **S23** - Effects of nicotine on thromboxane and leukotriene synthesis in cellular systems  
M. Goerig, Germany
- 12:00           **LUNCH**

## Saturday, July 23 - PM

- 13:30 - 18:00 SESSION 5: Nicotine and smoking: Current controversies**  
Chairpersons: K. Bättig, Switzerland and A.C. Collins, USA  
(10 min presentation plus 5 min discussion)
- 13:30           **S24** - Smoking-induced alterations in brain electrical activity:  
Normalization or enhancement?  
V.J. Knott, Canada
- 13:45           **S25** - Nicotine and cognitive effects  
I. Hindmarch, UK
- 14:00           **S27** - Self-administered nicotine acts through the ventral tegmental area: Implications for drug reinforcement mechanisms  
W.A. Corrigall, Canada
- 14:15           **S28** - Desensitization of the stimulatory effects of nicotine on dopamine secretion in the mesolimbic system of the rat  
D.J.K. Balfour, UK
- 14:30           **S29** - Mechanisms of acute and chronic tolerance to the behavioral effects of nicotine  
J.A. Rosecrans, USA
- 14:45           **S30** - Behavioral and biochemical analysis of dependence properties of nicotine  
T. Yanagita, Japan
- 15:00           **BREAK/POSTERS (refreshments will be served)**

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### Saturday, July 23 - PM (cont'd)

- 15:30           **S31** - Nicotine intake is regulated in humans  
M.A.H. Russell, UK
- 15:45           **S32** - There is more to smoking than the CNS effects of nicotine  
J. Rose, USA
- 16:00           **S33** - Pharmacological determinants of cigarette smoking  
J.E. Henningfield, USA
- 16:15           **S34** - Psychological resources from nicotine  
D.M. Warburton, UK
- 16:30           **S26** - Evidence that nicotine is addictive  
I.P. Stolerman, UK
- 16:45           **S35** - Nicotine is addictive  
R. West, UK
- 17:00           **S36** - Science and common-sense support the view that nicotine is  
not addictive  
J.H. Robinson, USA
- 17:15           **S37** - Individual differences in tobacco use may be related to  
genetically-determined differences in responses to nicotine  
A.C. Collins, USA
- 17:30           General Discussion - Is there a resolution?
- 19:30           **BANQUET (a night to remember!)**  
Announcement of poster award winners

### Sunday, July 24 - AM

- 08:30 - 12:30   SESSION 6: Nicotine and human diseases**  
Chairpersons: K. Kochsieck, Germany and R. Quirion, Canada  
(15 min presentation plus 5 min discussion)
- 08:30           **S38** - Relationship between smoking, nicotine and ulcerative colitis  
G. Thomas, UK

**Sunday, July 24 - AM (cont'd)**

- 08:50      **S39** - Beneficial effects of nicotine in Tourette's syndrome  
P.R. Sanberg, USA
- 09:10      **S40** - Nicotine and neuropsychiatric disorders  
J.R. Hughes, USA
- 09:30      **S41** - Nicotine, auditory gating, and schizophrenia  
R. Freedman, USA
- 09:50      **S42** - Epidemiology of smoking and Parkinson's disease  
J.A. Baron, USA
- 10:10      **S43** - Nicotine and animal models of Parkinson's disease  
A.M. Janson, Sweden
- 10:30      **BREAK (refreshments will be served; posters should be removed at this time)**
- 11:00      **S44** - Memory enhancing effects of nicotine  
E.D. Levin, USA
- 11:20      **S45** - Possible mechanisms underlying beneficial effects of nicotine on cognitive function  
M.H. Joseph, UK
- 11:40      **S46** - Nicotinic modulation of cognitive functioning in humans  
P.A. Newhouse, USA
- 12:00      **CLOSING REMARKS**  
M.J. Rand, Australia
- 12:30      **CLOSING LUNCHEON**

**N.B. Please check bulletin board in Conference Secretariat for departure times to airports and downtown Montreal.**

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## **INSTRUCTIONS FOR SYMPOSIUM SPEAKERS**

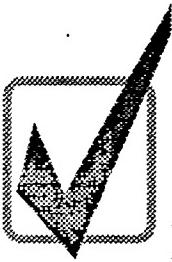
Speakers are requested to submit their slides to the projectionist in the conference room (Seigneurie I) **30 minutes** prior to the start of their session. Slide trays will be available in the conference room, where slides may be pre-screened if desired.

## **INSTRUCTIONS FOR POSTER PRESENTERS**

The poster sessions will be held in Seigneurie I and II. Poster boards are numbered 1 - 137. The posters can be mounted after 3:00 p.m. on Thursday July 21 on the poster boards whose number corresponds to that of your poster abstract(s). Please refer to the first author index at the end of the Abstract Book for the appropriate poster abstract number. The posters will be on display for the duration of the meeting. Author attendance is requested during the BREAK/POSTER periods and at the poster wine and cheese evening.

**Please note that the posters should be removed by 11:00 a.m. Sunday, July 24.**

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## POSTER AWARD VOTING SLIP

The Verum Foundation for Behaviour and Environment will award five prizes of \$1,000 Can each to the first authors of the best posters presented at the International Symposium on Nicotine in Ste Adèle. The winners will be selected by the conference participants. The scientific importance of the results and their visual presentation are to be appraised at a ratio of 2:1. The point system ranges from 1 (low) to 10 (high). Sum total = points for 'scientific relevance' x 2 + points for 'visual presentation'. Each participant may select three posters.

Voters are requested to fill out the voting slip and return it to the Conference Secretariat.  
**Deadline: Saturday, July 23 at 10:30 a.m.**

POINTS	TOTAL (out of 30)
--------	-------------------

**POSTER NO.** \_\_\_\_\_

Scientific importance	2 x	_____	=	_____
Visual presentation	+	_____		

**POSTER NO.** \_\_\_\_\_

Scientific importance	2 x	_____	=	_____
Visual presentation	+	_____		

**POSTER NO.** \_\_\_\_\_

Scientific importance	2 x	_____	=	_____
Visual presentation	+	_____		

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# **SYMPOSIUM ABSTRACTS**

## **SESSION 1: OVERVIEW**

- S1** Current Controversies in Nicotine Research, P.B.S. Clarke
- S2** Acute Biological Effects of Nicotine and its Metabolites, N.L. Benowitz
- S3** Involvement of Nicotine and its Metabolites in the Pathology of Smoking and Smoking-Related Diseases: Facts and Hypotheses, F.X. Adlkofer

## **SESSION 2: STRUCTURE AND FUNCTION OF NICOTINIC RECEPTORS**

- S4** Assembly of the Alpha7 Containing Neuronal Nicotinic Acetylcholine Receptor, J. Patrick, D. Char, D. Chen, L. Colquhoun, H. Dang, F. Goldner, S. Helekar, K. Dineley and S. Neff
- S5** Biochemical Characterization of Neuronal Nicotinic Receptors, C. Gotti and F. Clementi
- S6** Neuronal Nicotinic Receptor Structure and Function, J.M. Lindstrom
- S7** Determinants Regulating Neuronal Nicotinic Receptor Function, D. Bertrand, S. Bertrand, I. Forster and J.-P. Changeux
- S8** Expression, Function, and Regulation of Neuronal ACh Receptors Containing the  $\alpha 7$  Gene Product, D. Berg, W. Conroy, R. Corriveau, P. Pugh, M. Rathouz, S. Romano, S. Vijayaraghavan and Z.-W. Zhang
- S9** Regulation of Acetylcholine Receptor Genes Expression during Synaptogenesis in Muscle and Brain, J.-P. Changeux, J.L. Bessereau, A. Besis, A. Duclert, C. Le Poupon, H.O. Nghiêm, A.M. Salmon and N. Savatier

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## **SESSION 3: NICOTINIC RECEPTOR REGULATION AND TOLERANCE**

- S10** Biochemical Measures of Nicotinic Receptor Desensitization, M.J. Marks, S.R. Grady, S.F. Robinson, A.E. Bullock and A.C. Collins
- S11** The Role of Desensitization in CNS Nicotinic Receptor Function, P.M. Lippiello, M. Bencherif and R.J. Prince
- S12** Presynaptic Heteroreceptors, Autoreceptors and Nicotinic Receptor Subtypes, S. Wonnacott
- S13** Regulation of Neuronal Nicotinic Receptors: *In Vivo* and *In Vitro* Studies, K.J. Kellar, M.I. Davila-Garcia, Y. Xiao, R.A. Houghtling, R.D. Mellon, S.S. Qasba and C.M. Flores
- S14** Conditioned Tolerance to Nicotine in Rats, A.R. Caggiula, L.H. Epstein, S.M. Antelman, S. Knopf, K.A. Perkins, S. Saylor, E. Donny and R. Stiller

## **SESSION 4: NEURONAL, TROPHIC AND ENDOCRINE EFFECTS OF NICOTINE**

- S15** Developmental Effects of Nicotine, T.A. Slotkin
- S16** Potentiation of Transmission via Presynaptic Nicotine-Activated Channels Permeable to Calcium and Blocked by  $\alpha$ -BgTx, L.W. Role
- S17** Electrophysiology of Nicotinic Receptors in Rodent CNS, C. Léna, J.-P. Changeux and C. Mulle
- S18** Factors Controlling Nicotinic Acetylcholine Receptor Expression on Rat Sympathetic Neurons, E. Cooper and P. De Koninck
- S19** A Role for the Nicotinic  $\alpha$ -Bungarotoxin Receptor in Growth Related Processes, M. Quik
- S20** Mechanisms of Nicotine Stimulated Cell Proliferation in Normal and Neoplastic Neuroendocrine Lung Cells, H.M. Schuller
- S21** Brainstem Catecholaminergic Pathways Activated by Nicotine are Involved in the Hippocampal Expression of c-Fos mRNA and Protein, Stimulation of the Hypothalamic Paraventricular Nucleus and Secretion of ACTH, B. Sharp

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- S22 Nicotine-Induced Gene Expression of Proenkephalin in Bovine Chromaffin Cells, V. Höllt, X. Wang and B. Bacher
- S23 Effects of Nicotine on Thromboxane and Leukotriene Synthesis in Cellular Systems, M. Goerig

## SESSION 5: NICOTINE AND SMOKING: CURRENT CONTROVERSIES

- S24 Smoking-Induced Alterations in Brain Electrical Activity: Normalization or Enhancement? V. Knott
- S25 Nicotine and Cognitive Effects, I. Hindmarch
- S26 Evidence that Nicotine is Addictive, I.P. Stolerman and M.J. Jarvis
- S27 Self-Administered Nicotine Acts Through the Ventral Tegmental Area: Implications for Drug Reinforcement Mechanisms, W.A. Corrigall
- S28 Desensitisation of the Stimulatory Effects of Nicotine on Dopamine Secretion in the Mesolimbic System of the Rat, D.J.K. Balfour and M.E.M. Benwell
- S29 Mechanisms of Acute and Chronic Tolerance to the Behavioral Effects of Nicotine, J.A. Rosecrans, J.R. James and L.D. Karan
- S30 Behavioral and Biochemical Analysis of Dependence Properties of Nicotine, T. Yanagita, Y. Wakasa and K. Ando
- S31 Nicotine Intake is Regulated in Humans, M.A.H. Russell
- S32 There is More to Smoking than the CNS Effects of Nicotine, J. Rose
- S33 Pharmacological Determinants of Cigarette Smoking, J.E. Henningfield
- S34 Psychological Resources from Nicotine, D.M. Warburton
- S35 Nicotine is Addictive, R. West
- S36 Science and Common-Sense Support the View that Nicotine is not Addictive, J.H. Robinson and W.S. Pritchard

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- S37** Individual Differences in Tobacco Use May be Related to Genetically-Determined Differences in Responses to Nicotine, A.C. Collins, S.F. Robinson and M. Marks

## **SESSION 6: NICOTINE AND HUMAN DISEASES**

- S38** Relationship between Smoking, Nicotine and Ulcerative Colitis, G.A.O. Thomas and J. Rhodes
- S39** Beneficial Effects of Nicotine in Tourette's Syndrome, P.R. Sanberg and A.A. Silver
- S40** Nicotine and Neuropsychiatric Disorders, J. Hughes
- S41** Nicotine, Auditory Gating, and Schizophrenia, R. Freedman, L.E. Adler, P. Bickford, V. Luntz-Leybman, K. Wear, L.J. Hoffer, J. Griffith, M. Waldo, H. Coon, M. Myles-Worsley, S. Leonard and W. Byerley
- S42** Epidemiology of Smoking and Parkinson's Disease, J.A. Baron
- S43** Nicotine and Animal Models of Parkinson's Disease, A.M. Janson, A. Møller, P.B. Hedlund, G. von Euler and K. Fuxe
- S44** Memory Enhancing Effects of Nicotine, E.D. Levin and D. Torry
- S45** Possible Mechanisms Underlying Beneficial Effects of Nicotine on Cognitive Function, M.H. Joseph, G. Grigoryan, H. Hodges and J.A. Gray
- S46** Nicotinic Modulation of Cognitive Functioning in Humans, P.A. Newhouse, A. Potter, M. Piasecki, J. Geelmuyden, J. Corwin and R. Lenox

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# **POSTER ABSTRACTS**

## **SECTION 1: RECEPTOR LOCALIZATION**

- P1** Distribution of Nicotinic Acetylcholine Receptor Subunit Immunoreactivities on the Surface of Chick Ciliary Ganglion Neurons, P.B. Sargent and H.L. Wilson
- P2** Effects of Denervation Upon Nicotinic Acetylcholine Receptor Clusters in Autonomic Neurons as Determined by Quantitative Laser Scanning Confocal Microscopy, P.B. Sargent and H.L. Wilson
- P3** Cellular Diversity in the Expression of Nicotinic Acetylcholine Receptor Subunits in the Chick Central Nervous System, E.M. Ullian and P.B. Sargent
- P4** Cellular and Subcellular Visualization of the  $\beta 2$  - Subunit of the Nicotinic Acetylcholine Receptor in the Mouse Cerebral Cortex, R. Marks, J. Lindstrom and H. Schröder
- P5** Immunohistochemical Characterization of the Human Alpha 7 Neuronal Nicotinic Acetylcholine Receptor Subunit, M. Piattoni-Kaplan, D. Donnelly-Roberts, J. Pauly, D. Hill, J.B. Pan, S.P. Arneric and J.P. Sullivan
- P6** Localization of [ $^3$ H] Cytisine Nicotinic Binding Sites in Normal and Pathological Human Brain Using *In Vitro* Receptor Autoradiography, I. Aubert, D. Cécyre, S. Gauthier and R. Quirion

## **SECTION 2: RECEPTOR SUBTYPES - MOLECULAR BIOLOGY AND PHARMACOLOGY**

- P7** Cloning and Functional Expression of Alpha 9: A Novel Acetylcholine-Gated Ion Channel, A.B. Elgooyen, D. Johnson, J. Boulter, D. Vetter and S.F. Heinemann
- P8** Searching for an Acetylcholine-Gated Chloride Channel: Analysis of Cloned Leech Nicotinic Genes, R. Allen, M. Hartley and S. Heinemann
- P9** Heterologous Expression of Epitope-Tagged Neuronal Nicotinic and 5HT3A Receptor Subunits, J. Mukerji, E. Dumont and P. Séguéla

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